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EXAMINER	
CARTER, AARON W	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/701,839	SCHULTZ ET AL.	
	Examiner	Art Unit	
	Aaron W. Carter	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-23 and 27-32* is/are allowed.

6)☒ Claim(s) *1-10,13-18,24,25 and 33-37* is/are rejected.

7)☐ Claim(s) *11,12,26 and 38-50* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. The previous restriction requirement is withdrawn; all claims in the application have been examined.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the limitation "the data set of claim 15" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 44 recites the limitation "said separation **distances**" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4-10, 13-18, 24, 25 and 33-37 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/18732 to Ciampa.

As to claim 1, Ciampa discloses a system for capturing images and geo-location data corresponding thereto, comprising::

An image-capturing device, said image-capturing device capturing oblique images at image-capturing events, said image capturing device issuing image-data signals corresponding to captured images (page 1, lines 7-10, page 2, line 29 – page 3, line 2 and page 3, lines 18-20, wherein the camera corresponds to the image-capturing device which produces a digital image corresponding to the image-data signal);

At least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event (page 2, lines 10-13 and page 3, lines 20-21 wherein the GPS device corresponds to the geo-locating device and the latitude, longitude and altitude correspond to the geo-locating signal); and

A computer system receiving and storing said image-data signals and said at least one geo-locating signal (page 3, lines 9-16); and

Image and data acquiring software reading image-data signals and said at least one geo-locating signal, said software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (page 3, lines 9-16).

As to claim 2, Ciampa discloses the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise at least one of:

A clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (page 9, lines 6-8);

A global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of longitude and latitude of said image-capturing device at each said image-capturing event (page 8, lines 14-16);

An inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event;

A gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event (page 8, lines 16-17, wherein the inclinometer corresponds to the gyroscope);

Compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event (page 8, lines 13-14); and

An altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event (page 8, lines 17-18).

As to claim 4, Ciampa discloses the system of claim 1, further comprising correction data indicative of characteristics of said image-capturing device including focal length, sensor size, radial distortion, principle point offset and alignment, said image and data acquiring software utilizing said correction data captured images (page 3, lines 25-28 and page 6, lines 11-15).

As to claim 5, Ciampa discloses the system of claim 1, further comprising an output data file created by said image and data acquiring software, said output data file including a plurality of image files and positional data corresponding to each of said plurality of image files (page 3, lines 9-16).

As to claim 6, Ciampa discloses the system of claim 1, further comprising a platform carrying said image-capturing device a predetermined distance above a surface of interest (page 1, line 26 – page 2, line 2).

As to claim 7, Ciampa discloses a computerized system for displaying, geolocating, and making measurements based upon captured oblique images (page 1, lines 4-10), comprising:

A computer system having a memory (Fig. 1, elements 10 and 28);

An image and data file accessible by said system and including a plurality of image files corresponding to a plurality of captured oblique images (page 9, lines 8-10, page 11, lines 23-25 and page 12, lines 8-10, wherein capturing images at different angles corresponds to a plurality of oblique images), said image and data file further including positional data corresponding to said plurality of image file (page 3, lines 3-16, page, 8, lines 9-24 and page 11, lines 25-27, wherein compass bearing, latitude, longitude, depression and roll angles corresponds to positional data); and

Image display and analysis software executed by said system for reading said image and data file and displaying at least a portion of the captured oblique images as a displayed oblique image (page 3, line 30 – page 4, line 14), said software calculating the geo-location of one or more selected points within said displayed image (page 3, line 30 – page 4, line 4 and page 12, lines 2-5, wherein geographic coordinates of any one point on the ground correspond to geo-location), said software calculating a separation distance between any two or more selected points within said displayed image (page 3, line 30 – page 4, line 4 and page 12, lines 2-5, wherein ground measurements taken between any two image points corresponds to calculating a separation distance between two or more selected points).

As to claim 8, Ciampa discloses the system of claim 7, further comprising a ground plane data file representing a tessellated ground plane, said ground plane data file accessible by said

computer system, said ground plane data file representing a tessellated ground plane that closely approximates at least a portion of the terrain depicted within said captured oblique images (page 4, lines 4-11 and page 12, lines 5-10, wherein mosaic or tile images corresponds to a tessellated ground plane data file).

As to claim 9, Ciampa discloses the system of claim 8, wherein said tessellated ground plane further comprises a plurality of interconnected facets, each of said plurality of facets having a respective pitch and slope (page 4, lines 4-11 and page 12, lines 5-30, wherein each tile of the mosaic corresponds to a facet that is interconnected with other tiles of the mosaic and each tile corresponds to a captured image which contain pitch and slope, see also page 11, lines 23-28).

As to claim 10, Ciampa discloses the system of claim 9, wherein said ground plane data file comprises a plurality of vertices, each of said plurality of vertices having respective elevations and defining corners of said plurality of interconnected facets, two of said plurality of vertices shared by each of said interconnected facets (page 4, lines 4-11 and page 12, lines 5-30, wherein each tile or image in the mosaic has four corners and each corner corresponds to a vertices and tiles or images lying next to each other have two vertices shared).

As to claim 13, Ciampa discloses the system of claim 8, wherein said tessellated ground plane is one of superimposed upon and fit to said displayed image (page 4, lines 4-11 and page

12, lines 5-30, wherein each images placement in the mosaic is determined corresponding to fitting the tessellated ground plane to the image).

As to claim 14, Ciampa discloses the system of claim 7, wherein said image display and analysis software includes user-selectable measuring modes accessible through at least one of pull-down menus, toolbars and keyboard commands (page 8, lines 3-8).

As to claim 15, Ciampa discloses the system of claim 7, wherein each of said images were captured by an image-capturing device and at respective image capturing events (page 3, lines 18-20), said positional data of said image and data file including:

Time data representing the time of each image-capturing event (page 4, lines 6-8);

Location data representing the location of the image-capturing device at each image-capturing event (page 3, lines 20-21);

Orientation data representing the orientation of the image-capturing device at each image-capturing event (page 3, lines 22-25);

Correction data representing correction factors for the image-capturing device (page 3, lines 25-28 and page 6, lines 11-15); and

Elevation data representing an average elevation of the surface captured by the image-capturing device (page 3, lines 29-30).

As to claim 16, Ciampa discloses the system of claim 15, wherein said location data includes latitude, longitude, and altitude of the image-capturing apparatus at each image-capturing event (page 3, lines 20-21).

As to claim 17, Ciampa discloses the system of claim 15, wherein said orientation data includes roll, pitch, yaw and heading of said image-capturing device at each image-capturing event (page 3, lines 22-25).

As to claim 18, Ciampa discloses the data set of claim 15, wherein said image-capturing device is a camera (page 3, lines 18-20) and said correction data includes at least one of focal length, sensor size, aspect ratio, principle point offset, distortion, and pixel pitch (page 3, lines 25-28 and page 6, lines 11-15).

As to claim 24, Ciampa discloses a computerized method for taking measurements from an oblique image displayed on a computer system, at least one input device connected to said computer system, an image data file accessible by said computer system, said image data file including captured images and positional data corresponding thereto (page 1, lines 4-10 and page 3, lines 9-16), said computerized method comprising:

Placing the computer system into a desired one of a plurality of measurement modes, the desired measurement mode configured for calculating a desired measurement (page 4, lines 1-4, wherein obtaining geographic coordinates of any point and/or ground measurements between two points correspond to measurement modes which the computer can be placed into);

Selecting a starting point on the displayed image (page 4, lines 1-4, wherein one of the two points corresponds to the start point);

Retrieving the positional data corresponding to said starting point (page 4, lines 1-4, wherein geographic coordinates corresponds to positional data);

Selecting a end point of the displayed image (page 4, lines 1-4, wherein the other one of the two points corresponds to the end point);

Retrieving the positional data corresponding to said end point (page 4, lines 1-4, wherein geographic coordinates corresponds to positional data); and

Calculating the desired measurement dependent at least in part upon said positional data of said starting and end points (page 4, lines 1-4, wherein ground measurements corresponds to calculating the desired measurement).

As to claim 25, Ciampa discloses the method of claim 24, comprising further steps of:

Selecting one or more intermediate points on said displayed image (page 4, lines 1-4, wherein any point on the ground maybe selected); and

Retrieving the positional data corresponding to said intermediate points (page 4, lines 1-4, wherein geographical coordinates corresponds to positional data).

As to claim 33, Ciampa discloses the system of claim 7, further comprising:

An image-capturing device, said image-capturing device capturing oblique images at image-capturing events, said image capturing device issuing image-data signals corresponding to captured images (page 1, lines 7-10, page 2, line 29 – page 3, line 2 and page 3, lines 18-20,

wherein the camera corresponds to the image-capturing device which produces a digital image corresponding to the image-data signal);

At least one geo-locating device, each said at least one geo-locating device issuing a corresponding at least one geo-locating signal, each said at least one geo-locating signal being indicative at least in part of a geo-location of said image-capturing device during each image capturing event (page 2, lines 10-13 and page 3, lines 20-21 wherein the GPS device corresponds to the geo-locating device and the latitude, longitude and altitude correspond to the geo-locating signal); and

Wherein said computer system receives and stores said image-data signals and said at least one geo-locating signal (page 3, lines 9-16); and

Wherein said image display and analysis software reads said image-data signals and said at least one geo-locating signal, said software associating each said image-data signal with a corresponding said at least one geo-locating signal for each image-capturing event (page 3, lines 9-16).

As to claim 34, please refer to the rejection of claim 2 above.

As to claim 35, please refer to the rejection of claim 4 above.

As to claim 36, please refer to the rejection of claim 5 above.

As to claim 37, please refer to the rejection of claim 6 above.

Claim Rejections - 35 USC § 103

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ciampa in view of USPN 5,894,323 to Kain et al. ("Kain").

As to claim 3, Ciampa discloses the system of claim 1, wherein said at least one geo-locating device and said at least one geo-locating signal respectively comprise:

A clock issuing to said image-capturing computer system time data signals indicative of a time of each said image-capturing event (page 9, lines 6-8);

A global-positioning system (GPS) receiver receiving GPS signals and issuing to said image-capturing computer system location data signals indicative of longitude and latitude of said image-capturing device at each said image-capturing event (page 8, lines 14-16);

A gyroscope issuing to said image-capturing computer system a pitch signal, a roll signal, and yaw signal respectively indicative of a pitch, roll and yaw of said image-capturing device at each said image-capturing event (page 8, lines 16-17, wherein the inclinometer corresponds to the gyroscope);

Compass issuing to said image-capturing computer system heading data signals indicative of a heading of said image-capturing device at each said image-capturing event (page 8, lines 13-14); and

An altimeter issuing to said image-capturing computer system altitude data signals indicative of an altitude of said image-capturing device at each said image-capturing event (page 8, lines 17-18).

Ciampa does not disclose expressly an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event.

However, Kain discloses an inertial navigation unit (INU) issuing to said image-capturing computer system velocity data signals indicative of a velocity of said image-capturing device at each said image-capturing event (column 2, lines 53-60, wherein the IMU corresponds to the INU and detecting acceleration correspond to detecting changes in velocity which corresponds to velocity data signals indicative of a velocity).

Ciampa & Kain are combinable because they are from the same art of image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an INU for providing velocity data signals, as taught by Kain, with the system disclosed by Ciampa.

The suggestion/motivation for doing so would have been to use the velocity data in determining geographic data (Kain, column 2, lines 53-60).

Therefore, it would have been obvious to combine Ciampa with Kain to obtain the invention as specified in claim 3.

Allowable Subject Matter

6. Claims 19-23 and 27-32 are allowed.

7. Claims 11, 12, 26 and 38-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

8. As to claim 19, none of the prior art teach or fairly suggests the limitation of "calculating the linear distance along said line segments between said starting and end points thereby taking into account said pitch and slope of said facets", in combination with the other limitations of the claim. The prior art of Ciampa discloses calculating the linear distances along line segments between a starting and end point (page 4, lines 1-4), but Ciampa does not teach or fairly suggest calculating the linear distance along said line segments between said starting and end points thereby *taking into account said pitch and slope of said facets*, as disclosed in the limitations of claim 19.

9. As to claim 27, none of the prior art teach or fairly suggest the limitation of "guiding the platform along a second path to thereby target said target sectors; capturing with the image-capturing device one or more oblique images to thereby cover an entirety of each said target sector in oblique images captured from a second perspective", in combination with the other limitations of the claim. The prior art of USPN 6,747,686 to Bennett discloses guiding a platform along a first path to target one or more target sectors with an image-capturing device to provide a first perspective and capturing a second perspective of the target sectors while

traveling along the first path (Abstract). Bennett does not teach or fairly suggest guiding the platform along a second path to thereby target said target sectors; capturing with the image-capturing device one or more oblique images to thereby cover an entirety of each said target sector in oblique images captured from a second perspective as disclosed in the limitations of claim 27.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,247,356 to Ciampa discloses capturing oblique images and geo-location data.

US 2007/0046448 to Smitherman discloses capturing oblique images and geo-location data.

US 2006/0238383 to Kimchi et al. discloses capturing oblique images and geo-location data.

US 2007/0024612 to Balfour discloses capturing oblique images and geo-location data.

USPN 6,088,055 to Lareau et al. discloses capturing oblique images and geo-location data.

USPN 5,414,462 to Veatch discloses capturing oblique images and geo-location data.

USPN 6,731,329 to Feist et al. discloses capturing oblique images and geo-location data.

USPN 6,373,522 to Mathews et al. discloses capturing oblique images and geo-location data.

USPN 6,256,057 to Mathews et al. discloses capturing oblique images and geo-location data.

USPN 6,130,705 to Lareau et al. discloses capturing oblique images and geo-location data.

USPN 6,108,032 to Hoagland discloses capturing oblique images and geo-location data.

USPN 5,844,602 to Lareau et al. discloses capturing oblique images and geo-location data.

USPN 5,798,786 to Lareau et al. discloses capturing oblique images and geo-location data.

USPN 5,251,037 to Busenberg discloses capturing oblique images and geo-location data.

USPN 7,009,638 to Gruber et al. discloses capturing oblique images and geo-location data.

USPN 4,758,850 to Archdale et al. discloses capturing oblique images and geo-location data.

USPN 5,467,271 to Abel et al. discloses capturing oblique images and geo-location data.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is (571) 272-7445. The examiner can normally be reached on 8am - 4:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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